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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

RHEE, JANE J

ART UNIT

PAPER NUMBER

1772

5

DATE MAILED: 07/18/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/819,111

Applicant(s)

SEWARD ET AL.

Examiner

Jane J Rhee

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-35 is/are pending in the application.
- 4a) Of the above claim(s) 7,13,23-26 and 29-31 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6,8-12,14-22,27,28 and 32-35 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

## **DETAILED ACTION**

### ***Election/Restrictions***

This application contains claims directed to the following patentably distinct species of the claimed invention: Coil configuration a) axis coaxial with an axis of the hollow tube; b) axis off-set from the an axis of the hollow tube. Shape memory alloy is composed of a) NiTiCu; b) a plurality of shape memory alloy strips. Shape memory alloy is composed of a) a plurality of sections embedded in the tubular configuration; b) of net like configuration attached to the tubular configuration; c) a compressed spring located in a wall surface of tubular configuration; d) a plurality of bent sections located in openings of tubular configuration; e) a plurality of ribbons mounted in space relation around the tubular configuration. Shape memory alloy a) has mesh; b) plurality of strips.

Applicant is required under 35 U.S.C. 121 to elect a single disclosed species for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable. Currently, no generic.

Applicant is advised that a reply to this requirement must include an identification of the species that is elected consonant with this requirement, and a listing of all claims readable thereon, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered nonresponsive unless accompanied by an election.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which are written in dependent form or otherwise include

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all the limitations of an allowed generic claim as provided by 37 CFR 1.141. If claims are added after the election, applicant must indicate which are readable upon the elected species. MPEP § 809.02(a).

Should applicant traverse on the ground that the species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

During a telephone conversation with Mr. Thompson on July 10, 2002 a provisional election was made with traverse to prosecute the claims 1-6,8-12,14-22,28,32-35. Affirmation of this election must be made by applicant in replying to this Office action. Claims 7,13,23-26,29-31 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

### ***Claim Objections***

1. The numbering of claims is not in accordance with 37 CFR 1.126 which requires the original numbering of the claims to be preserved throughout the prosecution. When claims are canceled, the remaining claims must not be renumbered. When new claims are presented, they must be numbered consecutively beginning with the number next following the highest numbered claims previously presented (whether entered or not).

In claim 19 the misnumbered depending claim 19 been renumbered to 17.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. The term "bistable" in claim 1 and 35 is a relative term which renders the claim indefinite. The term "bistable" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.
3. The term "plurality of units" in claim 8 is a relative term which renders the claim indefinite. The term "plurality of units" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.
4. The term "different" in claim 9 and 33 is a relative term which renders the claim indefinite. The term "different" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.
5. The term "ribbon" in claim 12 is a relative term which renders the claim indefinite. The term "ribbon" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.
6. The term "openings" in claim 21 is a relative term which renders the claim indefinite. The term "openings" is not defined by the claim, the specification does not

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provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

7. Claim 27 recites the limitation "configuration support members" in claim 16.

There is insufficient antecedent basis for this limitation in the claim.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1-6, 8-12, 15-16, 27-28,34-35 are rejected under 35 U.S.C. 102(b) as being unpatentable by Phan et al. (5674242).

Phan et al. discloses a quantity of shape memory alloy and a quantity of shape memory polymer wherein the shape memory alloy has a coiled configuration (figure 2c number 34) and wherein the shape memory polymer has a cylindrical configuration (figure 2b number 32). Phan et al. discloses that the shape memory alloy is embedded or positioned within the shape memory polymer (figure 2b number 32,34). Phan et al. discloses that the coil configuration is compressed and retained in the shape memory polymer so as to define a hollow tube having the coil configuration embedded in a wall

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surface thereof (figure 2d number 34,32). Phan et al. discloses that the coil configuration has an axis coaxial with an axis of the hollow tube (figure 2d number 34). Phan et al. discloses a plurality of units each having a coiled configuration of shape memory alloy located within a cylindrical configuration of shape memory polymer (figure 2c numbers 34,32) wherein each coil configuration has a different configuration and the plurality of units are in a series configuration. Phan et al. discloses that the quantity of shape memory polymer has a tubular configuration (figure 1a number 22). Phan et al. discloses a quantity of shape memory alloy that has a mesh, tubular configuration wherein the quantity of shape memory polymer has a tubular configuration and wherein the mesh, tubular configuration is embedded in the tubular configuration (figure 1a number 22 and 18). Phan et al. discloses that the quantity of shape memory alloy has a tubular configuration located within the tubular configuration of shape memory polymer (figure 1a numbers 18 and 22). Phan et al. discloses that the quantity of shape memory polymer is in a tubular configuration (figure 2c number 32), wherein the shape memory alloy is wrapped around at least a portion of the tubular configuration, wherein the shape memory alloy has a ribbon configuration (figure 2c number 34 and 32). Phan et al. discloses an articulated tip or bistable device for reversible fine positioning of an object, comprising; a member constructed of shape memory polymer at least one member constructed of shape memory alloy located in or adjacent to the member constructed of shape memory polymer, and means for selectively heating the members to cause a change in configuration thereof, whereby the change in configuration results in reversible position thereof (col. 2 lines 34-42).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 14,17-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Phan et al. in view of Maynard (5405337).

Phan et al. discloses the device described above. Phan et al. fail to disclose that the quantity of shape memory alloy is composed of a plurality of shape memory alloy strips. Phan et al. fail to disclose that the shape memory alloy is composed of a plurality of strips, and wherein the strips located in a wall surface of the tubular configuration of shape polymer. Phan et al. fail to disclose that the plurality of strips are in the wall surface in a direction selected from the group consisting longitudinal and radial with respect to an axis of the configuration. Phan et al. fail to disclose that the plurality of strips are in a spaced longitudinal relationship. Phan et al. fail to disclose that the plurality of strips are located spaced radial relationships. Phan et al. fail to disclose that the plurality of strips are located in openings in the tubular configuration. Phan et al. fail to disclose that the shape memory is composed of a plurality of section embedded in the tubular configuration. Maynard teaches that the quantity of shape memory alloy is composed of a plurality of shape memory alloy strips wherein the strips are located in a wall surface or openings of the tubular configuration of shape polymer, in a direction selected from the group consisting longitudinal and radial with respect to



an axis of the configuration (figure 3a number 105) for the purpose of being able to controllably move a catheter tube or bendable element any direction in three dimensional space (col. 3 lines 28-31).

Therefore, it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to have provided Phan et al. with the quantity of shape memory alloy that is composed of a plurality of shape memory alloy strips wherein the strips are located in a wall surface or openings of the tubular configuration of shape polymer, in a direction selected from the group consisting longitudinal and radial with respect to an axis of the configuration in order to controllably move a catheter tube or bendable element any direction in three dimensional space (col. 3 lines 28-31) as taught by Maynard.

10. Claims 32-33 rejected under 35 U.S.C. 103(a) as being unpatentable over Phan et al. in view of Lee et al. (6059815).

Phan et al. discloses a plurality of units each having a coiled configuration of shape memory alloy and a cylindrical configuration of shape memory polymer, the units being connected in series wherein the coiled configuration has a different configuration (figure 2c number 32,34). Phan et al fail to disclose that the plurality of units each having a coiled configuration of shape memory alloy and a cylindrical configuration of shape memory polymer is connected to a light source via a plurality of optical fibers in a catheter and light control mechanism. Lee et al. teaches a light source via a plurality of

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optical fibers in catheter and light control mechanism (col. 6 line 35) for the purpose of heating means for shape memory polymer release mechanisms (col. 3 lines 1-2).

Therefore, it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to have provided Phan et al. with a light source via a plurality of optical fibers in catheter and light control mechanism in order to provide heating means for shape memory polymer release mechanisms (col. 3 lines 1-2) as taught by Lee et al.

### **Conclusion**


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jane J Rhee whose telephone number is 703-605-4959. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Harold Pyon can be reached on 703-308-4251. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-5408 for regular communications and 703-301-9999 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.



Jane Rhee  
July 11, 2002



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SUPERVISORY PATENT EXAMINER  
1112

7/12/02